

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1 – 4 (canceled)

5. (New) A method for multi-activation of ions and atoms with NMR and EPR, the method comprising:

providing an short-duration, high-current switch having a self induction of  $< 10 \mu\text{H}$ ;

coupling an inductor to the short-duration, high-current switch, the inductor further comprising a coil of a “few” conductors;

switching a high  $> 10000$  Amps current, with small  $< 0.1$  millisecond duration, through the inductor, in the presence of the Earth’s magnetic field, so as to create a pulsed, damped wave, alternating magnetic field; and

applying the pulsating, damped wave, alternating magnetic field to a material so as to perturb the spin orientations of the nuclei /electrons of the material.

6. (New) The method according to claim 5, wherein, the inductor further comprises a coil having one or two parallel conductors.

7. (New) The method according to claim 5, wherein, the inductor further comprises a coil having one or two twisted conductors.

8. (New) The method according to claim 5, wherein, the short-duration, high-current switch is selected from the group consisting of electronic switches, semiconductor switches, plasma switches, and spark gap switches.

9. (New) A system for multi-activation of ions and atoms with NMR and EPR, the system comprising:

a power supply;

a capacitor reservoir coupled to the power supply;

a short-duration, high-current switch coupled to the capacitor reservoir, the switch being suitably activated or self-activated;

an inductor forming a coil comprised of a "few" conductors, a short-duration, high-current being generated through the inductor in the presence of the Earth's magnetic field; and

wherein the inductor produces a damped wave alternating magnetic field suitable to perturb the spin orientations of nuclei /electrons of a material.

10. (New) The system according to claim 9, wherein, the inductor further comprises a coil having one or two parallel conductors.

11. (New) The system according to claim 9, wherein, the inductor further comprises a coil having one or two twisted conductors.

12. (New) The system according to claim 9, wherein, the short-duration, high-current switch is selected from the group consisting of electronic switches, semiconductor switches, plasma switches, and spark gap switches.

13. (New) The system according to claim 9, further comprising a second induction field contributing together with the ambient magnetic field of the Earth.

14. (New) A method for multi-activation of ions and atoms with NMR and EPR, the method comprising:

coupling a capacitor reservoir to a power supply;

providing a short-duration, high-current switch coupled to the capacitor

reservoir, the switch being suitably activated or self-activated and having a characteristic oscillation frequency;

forming an inductor coil;

generating a short-duration, high-current through the inductor at the switch's characteristic oscillation frequency and in the presence of the Earth's magnetic field;  
and

producing a damped wave, alternating magnetic field, having an intensity  $B$  in the inductor, suitable to perturb spin orientations of elementary atomic particles of a material.

15. (New) The method according to claim 14, wherein the elementary atomic particles of a material are neutrons, protons and electrons, and wherein energy absorption by the elementary particles is greatest by those particles having a resonant frequency corresponding to  $h\nu = \gamma B\hbar/2\pi$ .

16. (New) The method according to claim 14, wherein the magnetic field is applied into biological tissue so as to initiate biological nuclear transmutations through Nuclear Magnetic Resonance (NMR).

17. (New) The method according to claim 14, wherein the magnetic field is applied into biological tissue so as to initiate catalysis of chemical reactions and the resulting chemical changes through Electron Paramagnetic Resonance (EPR).

18. (New) The method according to claim 15, wherein the magnetic field is applied into biological tissue thereby causing ion formation in the biological tissue by energy absorption, and electrical current generation by movement of charged moieties across cellular membranes of said tissue.